

New Species of Nudibranchiate Mollusca from Auckland Waters.

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This paper describes three new species and adds four genera previously unrecorded from the Neozelanic Faunal Region. The types and other recorded specimens are all preserved in the Auckland Museum. The writer is much indebted to Mr. Guy C. Malcolm, who donated the excellent four colour process blocks which illustrate this paper.

PHYLLIROIDAE.

Genus PHYLLIROE Péron & Lesueur 1810. Ann. du Mus. t. XV, p. 65, 1810.

Type (monotypy): P. BUCEPHALA P. & L. PHYLLIRHOE Auctt. EURYDICE Eschscholtz 1825. PHILYRINE Menke 1844.

Phylliroe bucephala (Péron & Lesueur 1810). Pl. 30, fig. 4.

On the 6th July, 1930, Mr. Anderson, of the Fisheries Department, Auckland, caught a living specimen of this species, which was swimming at the surface, between Mokohinau Islands and Kawau Island, Hauraki Gulf.

Dakin (1936, p. 455*), in recording for New South Wales examples of an allied genus *Ctilopsis*, mentions that although specimens of *Phylliroe* have been recorded under five or six specific names from the Atlantic, the Pacific, the Indian Ocean and the Mediterranean, probably only one species exists.

I am guided by this statement in referring the New Zealand specimen to the type species. In any case no comparative material is available.

The text figure shows the normal profile of the specimen, and the colour figure is drawn with the body in profile, but the head and neck twisted to show the dorsal appearance of the head, mouth and cephalic tentacles.

Colour note: Animal transparent, with a pale lilac tinge. Stomach, throat and jaws pinkish. Contents of liver brown, granulated. The whole animal minutely speckled with purplish-brown.

Dimensions: Extreme length 33 mm. Maximum depth of body 11 mm. Minimum depth of body 4 mm. Cephalic tentacles 10 mm. when fully extended. Thickness 1 to 2 mm.

The above record adds a Family, a genus and a species to the New Zealand fauna.

*Dakin, W. J., 1936. *Ctilopsis*, a rare Pelagic Nudibranch of the Phyllirhoidae (Bergh). Proc. Zool. Soc. (Lond.), pp. 455-460.

Other nominal species of *Phylliroe* which will probably prove to be synonyms of *bucephala* are:—

Eurydice lichtensteinii Eschscholtz 1825.

Phylliroe punctulata Q. & G. 1833.

Phylliroe atlantica Bergh. 1871.

Phylliroe sanzoi Sparta 1925.

Phylliroe amboinensis Q. & G. 1833.

Phylliroe rubra Q. & G. 1833.

Phylliroe rosea d'Orbigny.

DUVAUCELIIDAE.

Genus *SPHAEROSTOMA* Macgillivray 1843.

Sphaerostoma flemingi n. sp. Pl. 30, fig. 3.

Minute, oblong, quadrilateral, tapering to a pointed tail. Buccal veil very simple, oblong with two sharply conical lobes projecting in front. Gills short, aborescent, and of unequal size, numbering five, definitely, on each side, and a few undeveloped ones in between. Tentacles retracted into prominent forwardly directed entire-edged cylindrical sheaths which are somewhat dilated at the mouth. Back and sides with irregular raised lumps and intermediate granules. The ground colour is greenish gray, but everywhere surrounding the lumps and granules is dark olive green. The gills, foot, sheaths and underside of the buccal veil is the greyish-green ground colour, but the top of the veil shades to dark olive-green towards the head.

This species may be nearer *Duvaucelia* or some other genus closely allied to *Sphaerostoma*. However, the scant literature available, here, the entire absence of comparative material, together with the known tendency of the veil to vary in the local *S. incerta*, and the undesirability of dissecting and thus destroying a unique specimen, make it impossible to be definite regarding the exact generic location of the Takapuna species.

Length, 6 mm

Holotype: (unique).

Habitat: Takapuna Reef, on Corallina weed (near site of old Takapuna Wharf). Collected by Mr. C. A. Fleming, 19/7/1931.

Sphaerostoma incerta (Bergh 1904). Pl. 30, fig. 2.

1913. *Tritonia incerta* Bergh. Suter, Man. N.Z. Moll., p. 555.

1924. *Tritonia incerta* Bergh. Powell, N.Z. Journ. Sci. & Tech., vol. 6, p. 286.

A colour figure is here given of a specimen taken at Motutara, West Coast, Auckland, in December, 1920.

CHROMODORIDIDAE.

Genus CERATOSOMA Adams & Reeve, 1848.

Type: *C. CORNIGERUM* Ad. & Reeve.***Ceratosoma amoena*** (Cheeseman 1886). Pl. 30, fig. 6.1886. *Chromodoris amoena* Cheeseman, Trans. N.Z. Inst., vol. 18, p. 137.1913. *Chromodoris amoena* Cheeseman, Suter, Man. N.Z. Moll., p. 572.

This species seems to be better placed in the above genus than in *Chromodoris*, which is a synonym of the prior *Glossodoris*. Miss Joyce Allan, of the Australian Museum, Sydney, on seeing the coloured sketches of this nudibranch, recognised it as unmistakably a *Ceratosoma*; the colour pattern on the tail and sides of the foot being a characteristic feature of *Ceratosoma*, but not of *Glossodoris*.

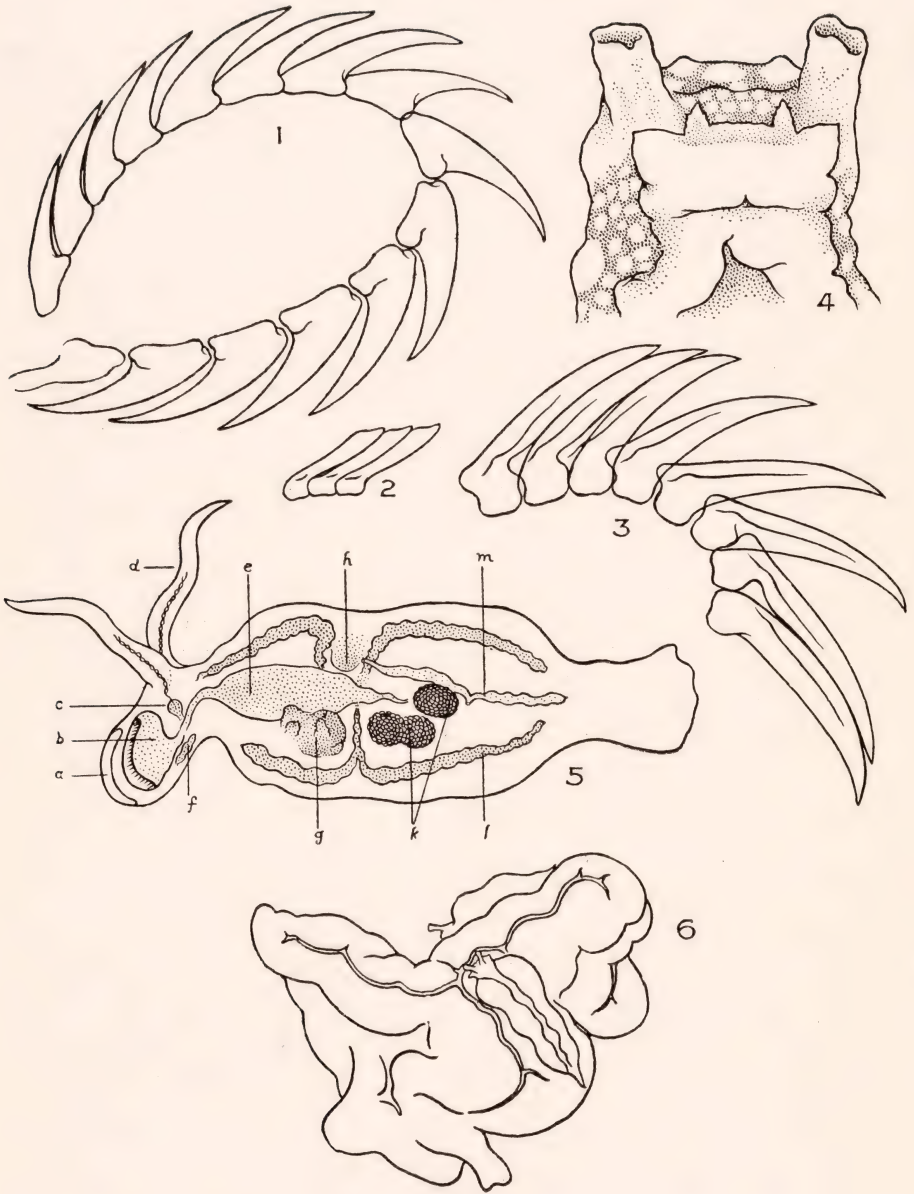
The colour figure here given is from a specimen from Whangarei Heads, taken by Mr. C. Fleming in August, 1936. Numerous records of the species from Hauraki Gulf localities are now known. The colour pattern is extremely variable in respect to the number, size, and disposition of the orange blotches. No specimen so far seen has the regular and symmetrical pattern of Miss Cheeseman's drawing of the type.

ELYSIIDAE.

Genus ELYSIA Risso 1818. Journ. de Physique, vol. 87, p. 375.

Type (monotypy): *NOTARCHUS TIMIDUS* Risso.***Elysia maoria*** n. sp. Pl. 30, fig. 5.

This interesting addition to our fauna, like the European *viridus* (Montagu) is restricted in station to the seaweed *Codium* upon which it feeds. The first New Zealand examples of *Elysia* were taken at Rangitoto Island, Auckland, on 28th March, 1930. Careful search on *Codium* in many localities in Auckland has since revealed the presence of *Elysia* on nearly every subsequent occasion. The largest example taken was 22 mm. long. Its dark green coloration, in perfect harmony with the green of the *Codium* weed, makes the species extremely difficult to locate. Strangely enough, the spawn coils first located on 29th April, 1931, at Tiri Tiri Island, are a much lighter green, rendering them quite conspicuous, and a useful indication of the presence of *Elysia* on the *Codium*. The text figure (6.) illustrates how the gap between the up-folded edges of the mantle superficially resembles the sutures in the *Codium*. This factor, combined with that of the coloration, causes the *Elysia* to be almost indistinguishable from the *Codium*. Miss L. M. Cranwell informs me that the *Codium* has lately been separated specifically from the species *Codium adhaerens* C. Agardh, considered to be almost cosmopolitan in range.



1. *Elysia maoria* n. sp. (dentition).
2. *Hermaca dendritica* Alder & Hancock (dentition) after A. & H. (Monog. Brit. Nud. Moll. Pl. 43, f. 15).
3. *Hermaca aoteana* n. sp. (dentition).
4. *Sphaerostoma flemingi* n. sp. (Ventral surface of head, showing buccal veil).
5. *Phylliroe bucephala* (Peron & Lesueur).
 a = mouth. b = jaws. c = cerebral ganglion. d = cephalic tentacle. e = stomach. f = salivary gland. g = genital pore (on right side). h = heart. k = ovo-testes. l = one of 4 lobes of liver. m = reno-pericardial sac.
6. *Elysia maoria* n. sp. on *Codium*, showing protective resemblance; gap between up-folded edges of mantle simulating sutures in the *Codium*.

Description of species:—

Body ovate-oblong, gradually narrowing behind as a short pointed tail. In life the mantle lobes curve upwards and towards each other, the whole animal then being roughly cylindrical. Neck cylindrical, capable of moderate extension. Head with two stout, somewhat involute, tentacles. Ground colour of external surface pale moss-green, densely speckled with dark green, and irregularly speckled with a second series of minute black dots, each encircled with a narrow margin of brick-red. Finally, there are irregular patches of white specks, more thickly sprinkled at the edges of the mantle and on distant irregularly disposed tubercles. The tentacles are as the rest of dorsal surface, but become white towards the tips, where there is a tinge of gray. Dorsal surface, inside the mantle-folds, mostly paler than the outside, particularly towards the middle. Elevated region of the heart pale yellowish-green, speckled minutely with brick-red.

Edges of mantle showing beautiful veining in bright green on a dark green ground, superimposed by numerous specks of brick-red and metallic-blue. The colour dots and veining are apparent only when the specimen is examined under a lens, the casual optical impression is of uniform dark green, becoming pale moss green within the mantle folds. The species seems nearest allied to the English *E. viridus*, which differs in having a prominent white patch around each eye, as well as different details of the pigmentation of the surface; the superficial colour effect, however, is very similar in the two species; this resulting from the protective resemblance factor in respect to the two closely similar species of *Codium*, with which the respective species are exclusively associated.

Dentition:—

The radula consists of a single loop of 15 teeth each having a broad, fairly straight base, and curving to a sharp point, resembling somewhat the side view of a mutton chop. It was not possible to compare actual specimens of the English *viridus*, but the figure given by Cook (fig. 135, p. 230, "Molluscs and Brachiopods." Cooke, Shipley & Reed) is closely similar to that of the New Zealand species here figured.

Length, 22 mm. (holotype).

Habitat: Takapuna Reef, Auckland (on *Codium*).

Type locality: Collected by Mr. C. A. Fleming, 21/3/1931, Rangitoto Island, Hobson Point, Rangitoto Island and Hauraki Gulf rocky shores generally A.W.B.P.

This adds a genus and species to the New Zealand fauna.

STILIGERIDAE.

Genus HERMAEA Loven 1844.

Hermaea aoteana n. sp. Pl. 30, fig. 1.

Minute, body elongate, greenish white, with dendritical dark olive green markings. Two fairly definite dark green stripes proceed down the back, one from each tentacle. It is rather narrow

behind the head, expanding towards the middle of the back and tapering to a narrow but blunt pointed tail. Tentacles cylindrical, rather short, folded longitudinally.

Papillae as long as the breadth of the animal and arranged transversely in series of three on each side.

Length, 3.5 mm.

Dentition:—

The radula consists of a single loop of at least 56 teeth (probably more as the radula was damaged slightly in mounting), each having a squarish base rising behind to a knob-like projection or keel from which the tooth tapers above to a long slender curved blade with a sharp tip. The radula of *H. dendritica*, as illustrated by Alder & Hancock 1845 (Monog. Brit. Nud. Moll. Pl. 43, f. 15) shows blunt chisel pointed non-tapering teeth, very different from those here figured for the New Zealand species.

Habitat: Bastion Point, Auckland Harbour, on the seaweed *Codium*. Collected only once by Mr. W. E. Perks, 27th Sept., 1931.

This species has a striking resemblance to the English *H. dendritica*, Alder & Hancock found on the seaweed *Codium tomentosum*. The only marked differences are in the shape of the teeth of the radula, the length of the cephalic tentacles and the shape of the tail.

This adds a genus and species to the New Zealand fauna.

AEOLIDIADAE.

Genus *GLAUCILLA* Bergh. 1867. Dansk. Vidensk. Selsk. Skrift (5), VII, p. 105.

Glaucilla atlantica Forster 1777.

On the 10th of October, 1934, Mr. A. S. Martin picked up a living specimen of this species at Mairangi Bay, Hauraki Gulf. *Glaucilla atlantica* inhabits the warmer parts of all the open seas, extending normally to 35° or 36° on either side of the equator, but rarely beyond. Its food appears to consist chiefly of the coelenterates *Velella* and *Porpita*. The species is fairly common on the New South Wales coast, but the above is the first record for New Zealand.

The extensive synonymy of the species is listed by Bergh., "Report on the Nudibranchiata dredged by H.M.S. Challenger during the years 1873-1876." Chall. Rep. Zool., vol. 10, p. 16.

This adds a genus and species to the New Zealand fauna.



1. *Hermaca aoteana* n. sp., 3.5 mm. (holotype).
2. *Sphaerostoma incerta* (Bergh 1904), 130 mm.
3. *Sphaerostoma flemingi* n. sp., 6 mm. (holotype).
4. *Phylliroe bucephala* (Péron and Lesueur 1810), 33 mm.
5. *Elysia maoria* n. sp., 22 mm. (holotype).
6. *Ceratosoma amoena* (Cheeseman 1886), 50 mm.